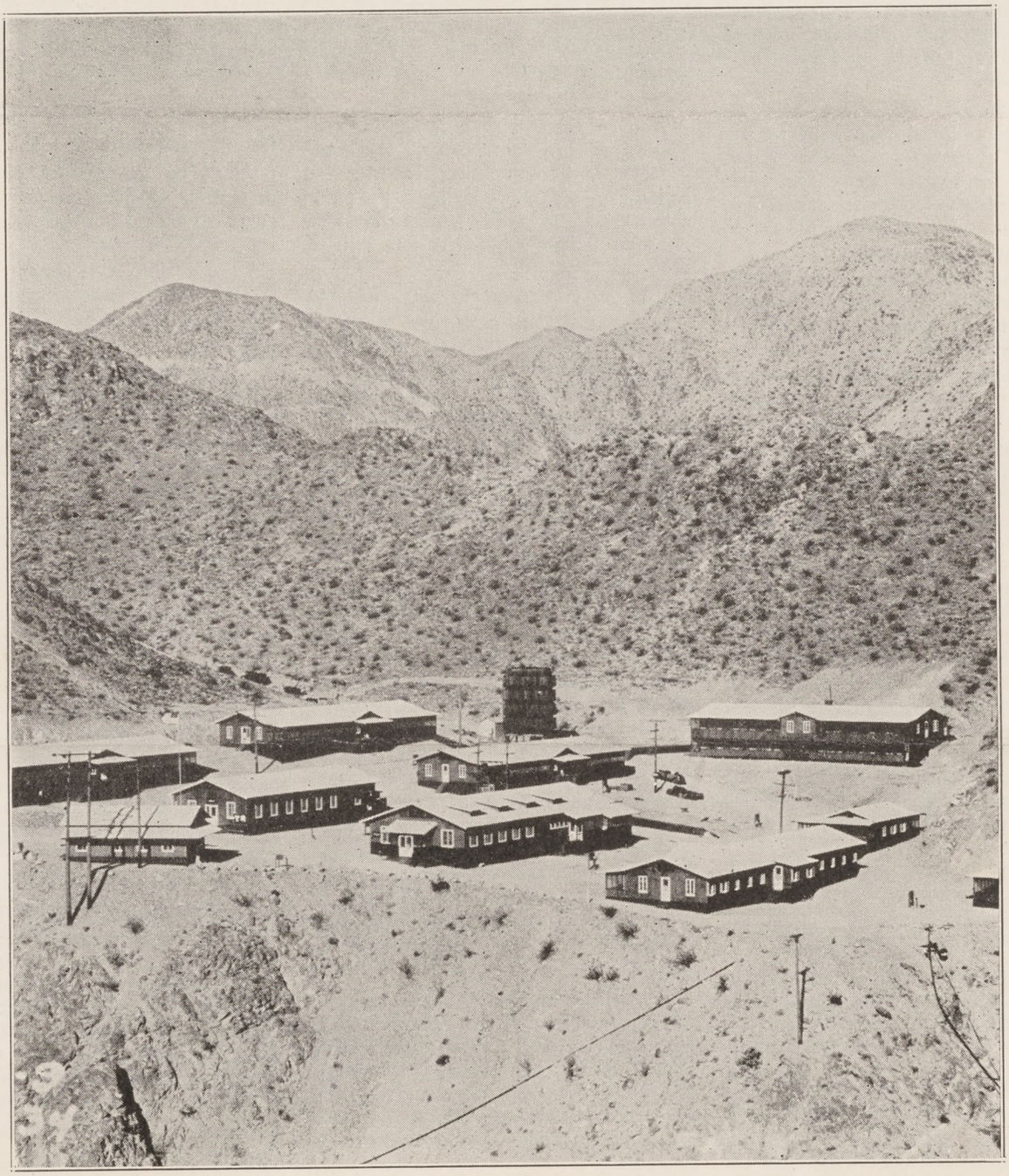
• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. 1 AUGUST 5, 1934 No. 14



FARGO CAMP

One of the four construction camps from which work is being carried forward on the eighteen-mile East Coachella tunnel.

· COLORADO RIVER ·
AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. 1 August, 5, 1934 No. 14

PROGRESS IN HEAT

Experience might lead to the very reasonable belief that high temperatures tend to slow down the most efficient of organizations.

It is extremely significant, therefore, that tunnel progress records along the desert line of the Colorado River Aqueduct continue to improve as the weeks go by, despite the fact that work is moving forward coincidentally with a constantly soaring thermometer.

There are two reasons for this phenomenon. In the first place, it bespeaks the care being exercised by the Metropolitan Water District and the contractors in the feeding and the housing of the men working under desert heat conditions.

In the second place, it proves the good sense of the men themselves. After all, the District and the contractors, no matter how careful they may be, cannot undertake to lead each individual employee about by the hand through the twenty-four hours of the day. And, inversely, all of the facilities in the world will not prevent suffering and discomfort in high temperatures, unless the men properly take advantage of these facilities and carefully regulate their own lives. From the splendid records of the past few weeks, then, it may be concluded that aqueduct workers, individually and collectively, have upheld their part of the bargain, and are to be congratulated for so doing.

It should be remembered, however, that the summer is by no means over, and the time has not come to relax for one instant the most rigid vigilance.

It may not be amiss, therefore, to again call attention to the simple rules compiled by Chief Surgeon-Medical Officer Carey covering preventative measures and emergency treatment for heat or sun stroke and heat exhaustion. They were printed in detail in the June 20 issue of the AQUEDUCT NEWS. Dig out that back issue and read them, and remember:

Use your head and save your health.

AQUEDUCT'S HUGE SIZE IS SHOWN BY ESTIMATES OF MATERIALS REQUIRED

From Los Angeles to New York is a long way. Imagine a concrete fourteen-foot highway, about five inches thick, built from Los Angeles all the way to New York. The amount of cement that would be needed in building that road is the quantity it is estimated will be required for the aqueduct—5,670,000 barrels of it; 170,000 more barrels than the Boulder Dam will use. About 413,000 barrels will be used this year.

Enough gasoline will be used in furthering the project to drive 2,200 touring cars once around the world at the equator — 3,600,000 gallons. Of this amount, 575,000 gallons were consumed last year; about 600,000 gallons will be used this year.

The project requires an enormous amount of electric power for construction work. In its entirety, the job will utilize 240,000,000 kilowatt hours, or a monthly consumption of electrical power equivalent to the monthly consumption by 55,000 homes.

The copper cable to be used for the construction power lines needed for carrying on the construction work would be enough to stretch a wire from here to Detroit. There was 3,893,000 pounds of it used last year.

The beef, pork, and mutton bought for the project workers last year, totaled 1,215,000 pounds and are estimated to total 2,430,000 pounds this year. For the entire length of the project, it is estimated 30,000,000 pounds will have to be purchased.

This is equivalent to a herd of 60,000 steers, pigs, and sheep.

It would take 4,500 acres of good potato ground one year to grow the 26,700,000 pounds of spuds that will be consumed by aqueduct workers. Last year, 1,080,000 pounds of potatoes were consumed; 2,160,000 pounds will be purchased this year.

It would take 155,000 hens one year to lay the eggs that will be required to help feed the work crews. There were 75,000 dozen eggs bought last year; 151,000 dozen will be purchased this year. For the six years of the project it is estimated 1,850,000 dozen will be required.

It would take a great deal of space to illustrate what the rest of the project requirements mean. But the figures themselves tell a remarkable story.

A good sized army might require as much food and other supplies during the course of a six-year war as will be used on the aqueduct. Here is a peacetime army performing a mighty work for the benefit of millions of people. The money spent for it and by it is of economic benefit of incalculable value. Here are some more estimates of foodstuffs to be consumed during the entire construction of the project:

Ham, bacon, sausages, pigs feet, salt pork, etc., 5,350,000 pounds. Bought last year, 216,000 pounds; to be bought this year, 432,000 pounds.

Lard, 1,000,000 pounds, of which 40,000 pounds were bought last year and 81,000 pounds will be purchased this year.

To be bought for the entire job:

Fresh vegetables, 12,000,000 pounds; butter, 2,150,000 pounds; flour, 1,950,000 pounds; coffee and tea, 1,900,000 pounds; sugar, 10,000,000 pounds; dried fruit, 2,150,000 pounds; staple groceries, 12,000,000 pounds; canned vegetables, 1,400,000 gallons; canned fruit, 2,700,000 gallons.

Exclusive of eggs, there were 2,953 tons of food supplies bought last year and the estimates specify 5,923 tons for this year.

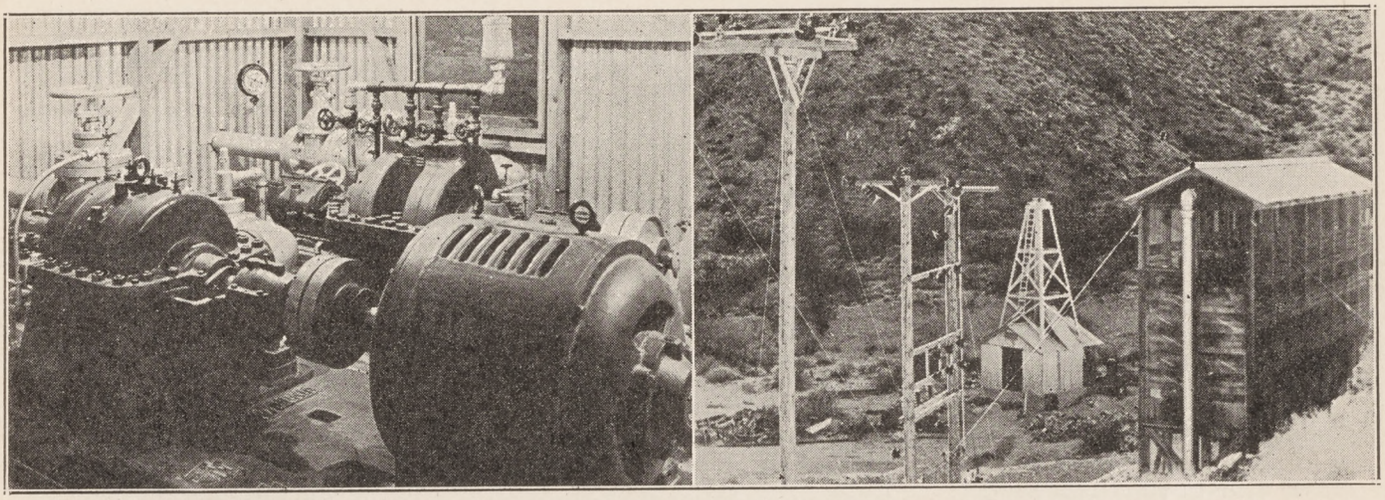
Reinforcing steel, 129,200,000 pounds of it, will be used during the six-year construction period.

Likewise will be required 4,425,000 board feet of tunnel timber, to brace and strengthen the bores that are to pierce mountain ranges along the route of the aqueduct.

Forty-one million pounds of explosives are to sound their thundering reports during the course of aqueduct construction.

All manner of man and machine power will be required in gouging 37,326,000 cubic yards of dirt and rock from the earth in making excavations necessary for the project, and piling up 5,556,000 cubic yards in embankments around the various reservoirs that are to be needed along the line.

That vast mass of earth, statistics show, would cover Pershing Square with a pile more than a mile in depth.



Motors and Pumps at Buried Mountain Booster Station, and (right) the Little Morongo Canyon Well and Aerator.

PER CAPITA WATER CONSUMPTION SOARS IN AQUEDUCT CAMPS DURING HOT MONTHS

That more water is required per person in the Colorado River desert in summer than in the relatively cool winter months is not only entirely obvious to every aqueduct employee and recent visitor, but is even "proved by statistics," in a recent study of the use of water in the desert camps served by the District's construction water system during the past year.

To furnish this adequate, dependable supply of potable water, absolutely sanitary and pure as regards bacterial contamination and even relatively soft, compared with most desert well waters, the District has drilled 12 wells and equipped them with deep-well turbine pumps, has built 19 main-line booster pump stations and 180 miles of main 5- to 8-inch pipe lines. The cost of this water system has been approximately $700,000, constituting a major construction job in itself, even when considered as merely a temporary adjunct of a project of the magnitude of the aqueduct.

There are naturally various reasons for this increase, the first one being that the permanent camps which are now established are conducive to a more normal, homelike method of living. Plenty of showers and wash tubs are available and, fortunately, it is unnecessary to ration the amount of water a man may use. What is probably a more fundamental cause for this increased use of water is the present systematic, highly efficient method of driving tunnels which is almost weekly setting new world records for tunnel progress: The rate of water consumption being roughly proportional to the speed of tunnel driving. And in a few sheltered corners the evidence of a woman's hand is seen as green garden spots spring up, in startling contrast to the surrounding barren environment, as a result of severe labor and admirable ambition and planning, the "tropical" climate, and practically constant watering.

From a more technical standpoint, the study discloses that for every foot of tunnel which has been driven during the past year, there has been required to date an average of 863 gallons of water. This is equivalent to 60% of the aqueduct's cross-section after lining, or equals nearly one-half of the volume of tunnel rock excavated. So the aqueduct is being constructed not only of concrete and steel, supplemented by high explosives and even higher voltage electric power, substantial camp meals (a la Napoleon and his army) and an astonishingly long list of other essentials, but it is also quite litererally built of water and ever more water, the one absolute necessity in the desert.

The following table is a summary of the water consumption by months during the past year, not including Whitewater tunnel and camps to the west on Divisions 5 and 6, where water is more easily available than in the desert:

Month Ending	No. Men in Camp Served	Water Consumption Cu. ft.	Per Capita Cons. Gals. per Day
July 16, 1933	1,410	399,100	68
Aug. 16, 1933	1,600	699,670	105
Sept. 15, 1933	1,830	943,640	129
Oct. 16, 1933	2,120	779,620	89
Nov. 15, 1933	2,580	1,126,340	109
Dec. 16, 1933	2,530	1,140,270	109
Jan. 16, 1934	2,570	1,108,760	104
Feb. 14, 1934	2,780	1,320,460	123
Mar. 16, 1934	2,900	1,353,340	116
April 15, 1934	3,120	1,951,910	156
May 16, 1934	3,150	2,042,680	157
June 15, 1934	3,200	2,329,580	182
July 16, 1934	3,250	2,199,860	163
12 Mo Total and Means	2,635	16,996,130	133

For the last twelve months, the total metered water consumption amounts to 390 acre feet. It is interesting to note that the average annual per capita water use in the camps has been practically identical with the consumption in Los Angeles and the average of the other District member cities.

When the tunnels are driven and the concrete lining is placed, this consumption will again materially increase until a per capita rate of use of over twice the present average will probably be observed.

A continuous effort has been and is being made to maintain and improve the quality of all camp water supplies. A new well has just been completed at Eureka Wash, below the Parker dam site and but a few feet from the Colorado River, which yields a water materially better than that previously available for the camps near the river. In addition, a chlorinator and dry lime feed have recently been installed at the Eueka Wash and Earp wells, the chief source of supply for the eastern 70 miles of the aqueduct. At the Pinto Well, located above the line and between the Coxcomb and Eagle Mountain tunnels, in addition to the chlorinator and dry lime feeder, a large aerator has been constructed and but recently put in operation.

A chlorinator is now also operating at the Big Morongo Well, the main supply for camps as far east as Berdoo, to be used in conjunction with the aerator already functioning at that location, in order to keep the water as clear and potable as possible.

General Manager Weymouth Back From East

General Manager and Chief Engineer Weymouth was back at his desk last week after an extended visit in the East on Metropolitan Water District business.

During the course of his travels, Mr. Weymouth was present at the sixty-third commencement exercises of the University of Maine, on June 11, and received from his alma mater the degree of doctor of engineering in recognition of distinguished achievement in engineering.

While at Orono, Me., the seat of the university, Mr. Weymouth presented a paper on the Colorado River Aqueduct project before the alumni association of the institution. His degree, voted by the trustees of the university, was conferred by Dr. H. S. Boardman, president of the institution, who attended college at the same time as Mr. Weymouth, the latter being a member of the class of '96.

The general manager's return trip West was made by way of the Canadian Rockies, where he enjoyed a brief vacation before resuming his duties in Los Angeles.

Water In Potrero Shaft Being Lowered

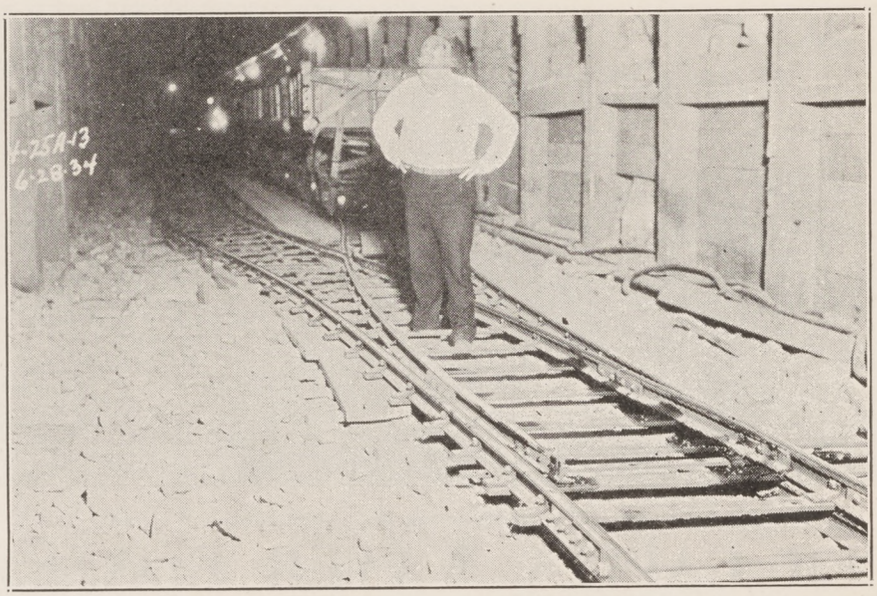
Steady progress was being made last week on the task of lowering water in Potrero shaft of San Jacinto tunnel, flooded on July 1.

Operating two deep-well turbine pumps, each with a capacity of 1,200 gallons per minute at an 800-foot lift, Wenzel & Henoch crews have lowered the water level in the shaft —— feet.

A third pump, with a capacity of 2,600 gallons per minute, is now being assembled, in the east, and will be placed in operation in a short time.

Breaking through in the east heading of the tunnel, the water flooded both legs of the bore and reached a depth of 647 feet in the 796-foot shaft.

While pumping is going forward, work is proceeding as usual at other points along the tunnel. At the same time, drying sheds are being erected and other preparations made for reconditioning the submerged equipment.



The California Switch

Winston Bros. Men Challenge Champs

In its last issue the NEWS cited the record of Evans and Packham, who, it was claimed, had worked continuously —without missing a shift—since October 21, 1933. Competition was invited. One response was the following communication from Division No. 3:

"We notice that competition is invited by a challenge laid down by Broderick & Gordon, who offer as champions Tom Evans and Virgil Packham for the holders of long time record for continuous work. This challenge has been accepted by Winston Brothers Company at East Coxcomb, who offer the following list of names as claimants for this trophy:

"T. J. Dohoney, employed August 10, 1933; Harry Hanson, Sept, 19; M. J. Hogan, Aug. 24; E. J. Keefe, Aug. 1; C. E. Johnson, Aug. 17: Nick Layibad, Sept. 9; Tony Salla, Oct. 1; Ben Nichols, Aug. 17; J. D. Laughlin, Sept. 12; John Ojala, Aug. 28: Matt Johnson, Sept. 11; Leonard Kirchoff, Sept. 3; Charles Salat, Sept. 19; William Moran, June 26; John Borg, Oct. 2; Paul W. Chambers, Sept. 23; W. L. Bates, Aug. 19; John Sauer, Sept. 20; Plass Deckhard, Oct. 30; Lewis Ures, Oct. 2; Carl Totman, Oct. 1; Harold McNeil, Aug. 28, and Gunner Bergquist, Aug. 25."

From the Coachella Division comes word that Leo Herbert started to work at Thousand Palms on March 28, 1933, and has never lost a shift to date.

California Switch Draws Interest of Visitors

Recognizing rapid dump car shifting as a primary aid in accelerating progress and cutting down costs of tunnel construction, engineers visiting the aqueduct line have evidenced particular interest in the various devices in use for this purpose.

The several types of "grasshoppers" being used with success along the aqueduct have been described in previous issues of the NEWS. Car shifting is also done successfully along the aqueduct with "cherry-pickers" and with the shifting attachments of the Bucyrus-Erie shovels.

Another device which is proving highly satisfactory is the California Switch. It is being used on several of the District tunnels on the Coachella Division.

The device consists of a section of double track with frogs and switch points at each end, built as a rigid unit so that it can be superimposed on a single centered tunnel track, and moved forward each day or two to keep pace with the advance in the tunnel heading.

In passing from the main track to the switch, cars roll upward about five inches to the level of the switch on tapered sections of rail lying flat on the main track rails.

Being close to the mucking machines at all times, the switch stores the empty cars which are drawn to the heading as needed by a rope and a small hoist mounted on the mucker. The time required for switching averages less than one minute per car.

DIRECTORY

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S. H. Finley, Secretary

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Los Angeles.....Perry H. Greer
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Los Angeles.....D. W. Pontius
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Los Angeles.....Victor H. Rossetti
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Asst. General Manager.....J. L. Burkholder
Asst. Chief Engineer.....Julian Hinds
General Counsel.....James H. Howard
Asst. Controller.....J. M. Luney
General Superintendent.....James Munn
Chief Elec. Engineer.....J. M. Gaylord
Construction Engineer.....J. B. Bond
Asst. to Gen. Mgr.....Don J. Kinsey

DIVISION ENGINEERS

Division 1.....R. C. Booth
Divisions 2 and 3.....John Stearns
Division 4.....R. B. Diemer
Divisions 5 and 6.....B. C. Leadbetter

SUPERINTENDENTS

Colorado River, Copper Basin and Whipple Mt. Tunnels, Walsh Construction Co., F. T. Huntington, Gen. Supt.; W. A. Huntington and E. A. Hatch, Tunnel Supts.

Coxcomb Tunnel and Iron Mt. shaft, Winston Bros., E. A. Bernard, Gen. Supt.; F. T. Hillman and R. B. Johnson, Tunnel Supts.

Iron Mt. Tunnel, West Portal, Utah Constr. Co., Ben Arp, Gen. Supt.

East Eagle Mt. Tunnel and West Eagle Mt. Tunnel, east portion, Broderick & Gordon. C. J. Kavanagh, Gen. Supt.

West Eagle Mt. Tunnel, west portion L. E. Dixon and Bent Bros., P. C. Guinn, Gen. Supt.

Hayfield Tunnel No. 1, Hunkin & Conkey Constr. Co., G. B. Hoag, Gen. Supt.; F. Backlund, Tunnel Supt.

Hayfield Tunnel No. 2, Shofner & Gordon, H. E. Warden, Gen. Supt.

Cottonwood Tunnel, J. F. Shea Co., Inc., Gilbert Shea, Gen. Mgr.; Joe Bonner and Carl Nelson, Tunnel Supts.

Mecca Pass Tunnels, Morrison-Knudsen, S. A. Dahlberg, Gen. Supt.; C. A. Griffen, Asst. Supt.

Coachella Division, R. M. Merriman, Division Supt.

Yellow Canyon Adit, E. Coachella Tunnel—
District Force Account.....W. L. Taylor

Fargo Adit, East Coachella Tunnel—
District Force Account....J. H. Manwaring

Berdoo Adit, East Coachella Tunnel—
District Force Account.....F. A. Weller

Pushawalla Adit, East Coachella Tunnel—
District Force Account.....Kenneth MacIsaac

Thousand Palms—
District Force Account.....D. L. Reaburn

Wide Canyon—
District Force Account.....John Jackman

Long Canyon—
District Force Account....E. E. McCabe,

Little Morongo—
District Force Account.....R. L. Bryant,

Whitewater Tunnels, West Constr. Co., H. E. Carleton, Gen. Supt.; Angus MacDonnell, Tunnel Supt.

San Jacinto Tunnel, Wenzel & Henoch, Walter Hoenecke, Gen. Supt.; W. A. Boyd, Walter Baer, and Jack May, Tunnel Supts.

Bernasconi Tunnel, Hamilton & Gleason Co., H. J. King, Gen. Supt.

Valverde Tunnel, Dravo Contr. Co., R W. Remp, Gen. Supt.; H. C. Richarson, Asst. Gen. Supt.; Dean Luther, J. R. Glaeser, Jack Stone, and Fred Youmans, Tunnel Supts.

Division No. 3 Headquarters

Culprits Cringe As Stearns Snarls

Another wave of wailing and gnashing of teeth was heard this week from the sun parched slopes of Iron Mountain and from the vine covered cottage which is the office building for Division No. 3.

The July 5 AQUEDUCT NEWS' report of progress made by the Walsh Construction Company inspired Division Engineer John Stearns to take his fountain pen in hand last week and squirt the following stream of ink directly into the eye of the editor of the NEWS—not to mention the collective eye of members of the office engineering force who compile progress records:

"I notice that another mythical all-time aqueduct record has been made, this time by Walsh Construction Company, who unquestionably made an excellent run of 806 feet between June 16 and July 15, and for the week ending July 14 during 21 shifts made an average advance of 12 feet per shift.

"It is pointed out that the Utah Construction Company, between October 26 and November 26, 1933, made 1,203 feet of completely timbered tunnel in 90 shifts or an average of 12.4 feet per shift; also between November 1 and 30, inclusive, they drove 1,027 feet of completely timbered tunnel during 90 shifts, or an average of 11.4 feet per shift."

Shocked and grieved at receiving such a biting epistle from one who normally is the best natured of men, the editorial and statistical forces none the less rise to point out that Mr. Stearns overlooked the fact that Colorado River tunnel's record was made in hard rock while Iron Mountain's splendid work was achieved through sand.

Div. 3 Headquarters Called Aqueduct Garden Spot

The garden spot of the aqueduct line.

Such is the title being conceded to Division No. 3 headquarters, located near the Eagle Mountains, eight miles north of Desert Center.

Housing 25 Metropolitan Water District employees, the camp has developed in the short space of a few months from raw, barren desert to a modern community surrounded by grassy spaces and all manner of foliage imported from "civilization."

In addition to Division Engineer and Mrs. John Stearns, seven other families call the camp home sweet home—Mr. and Mrs. D. C. Walker, Mr. and Mrs. T. J. Churchill, Mr. and Mrs. Allison B. Polley, Mr. and Mrs. George Smith, Mr. and Mrs. Kenneth Simpson, Mr. and Mrs. Frank Ellis, and Mr. and Mrs. R. L. Taunton.

A notable feature of the establishment is a tennis court, built with funds provided by employees. The court, equipped with excellent lighting facilities, is the center of the headquarters' "night life."

A source of amazement to all visitors is the luxuriant growth which has been coaxed from the desert soil to provide pleasant surroundings for residents. According to Division Engineer Stearns, a majority of the credit for this development goes to the horticultural wizardry of L. A. Ledbetter, who makes up a one-man house and grounds committee for the camp. In discussing the atmosphere which has been achieved, Mr. Stearns complimented all employees living in the camp for the cooperation they have given in making and keeping it attractive.

BEST PROGRESS
This Period
Rock Tunnels - Colorado River, 961 ft.
Gravel Tunnels - Whitewater No. 2, 775 ft.

TUNNEL PROGRESS

July 1 to 31, 1934
Tunnel Excavated to Date, 34.67 Miles

BEST WEEK'S PROGRESS
This Year
Rock Tunnels - Colorado River, 251 ft.
Gravel Tunnels - Whitewater No. 2, 233 ft.

TUNNELS ON CONTRACT	Length in feet	Number of Shifts	EXCAVATION PROGRESS IN FEET: Average Per Shift	This Period	Total to date
Walsh Constr. Co.					
COLORADO RIVER	(5514)				
West Portal	5514	84	11.4	961	1429
COPPER BASIN, No. 1	(752)				
West Portal	752			0	752
COPPER BASIN, No. 2	(11,580)				
East from adit	1878			0	1878
Adit	330			0	330
West from adit	9702	84	8.4	709	5016
WHIPPLE MT.	(32,265)				
East from adit	18,352	84	7.3	613	4746
Adit	924			0	924
West from adit	13,913	84	6.7	565	4057
Winston Bros.					
IRON MT.	(39,759)				
East from shaft	9844	72	4.4	319	2113
Shaft	165			0	165
West from shaft	13,743	72	6.9	500	4782
Utah Constr. Co.					
IRON MT.					
West Portal	16,172	75	5.9	446	7545
Winston Bros.					
COXCOMB	(17,795)				
East Portal	8765	72	8.4	608	5922
West Portal	9030			0	0
Broderick & Gordon					
EAST EAGLE MT.	(9,442)				
West Portal	9442	63	3.8	239	361
WEST EAGLE MT.	(26,494)				
East from adit	7871	63	6.0	376	2150
Adit	2008			0	2008
West from adit	7974	63	4.2	262	1328
Dixon & Bent					
WEST EAGLE MT.					
West Portal	10,649	67	6.4	432	5570
Hunkin & Conkey					
HAYFIELD, No. 1	(9677)				
East from adit	5317	72	5.3	380	2062
Adit	511			0	511
West from adit	4360	72	5.5	398	1750
Shofner & Gordon					
HAYFIELD, No. 2	(5375)				
West Portal	5375	52	6.9	357	2921

TUNNELS ON CONTRACT	Length in feet	Number of Shifts	EXCAVATION PROGRESS IN FEET: Average Per Shift	This Period	Total to date
J. F. Shea Co.					
COTTONWOOD	(20,105)				
East Portal	10,114	75	8.6	646	6825
West Portal	9991	75	8.0	601	6450
Morrison-Knudsen					
MECCA PASS	(5,940)				
No. 1, West Portal	338			0	338
No. 2, West Portal	997	72	7.0	503	799
No. 3, East Portal	4605	0	0	0	4605
West Constr. Co.					
WHITEWATER	(10,206)				
No. 1, West Portal	2060	0	0	0	35
No. 2, East Portal	8146	72	10.8	775	7304
Wenzel & Henoch					
SAN JACINTO	(67,415)				
East from Cabazon	8553	90	0.2	22	692
Cabazon shaft	246			0	246
Cross drift	935			0	935
West from Cabazon	22,839	90	8.5	763	3151
East from Potrero	20,589	0	0	0	160
Potrero shaft	796	0	0	0	796
West from Potrero	6712	0	0	0	223
West Portal	8722	90	2.8	255	2098
Hamilton & Gleason					
BERNASCONI	(6220)				
East Portal	6220	56	7.6	428	4146
Dravo Contr. Co.					
VALVERDE	(38,765)				
East from Shaft 1	2140	40	6.6	265	1872
Shaft 1	64			0	64
West from Shaft 1	1525	84	2.9	242	1310
East from Shaft 2	5400	84	3.6	300	3996
Shaft 2	204			0	204
West from Shaft 2	5400	84	5.6	473	4023
East from Shaft 3	6950	63	0	0	2450
Shaft 3	192			0	192
West from Shaft 3	6950	84	7.1	595	4077
East from Adit	5117			0	0
Adit	406	56	2.0	111	288
West from Adit	5283			0	0
Total Excav. Contract Tunnels exclusive of Adits and Shafts (In Miles)	307,304 58.20	2138	6.1	13,033 2.47	108,936 20.63

TUNNELS ON FORCE ACCOUNT

	Sched.					
EAST COACHELLA TUNNEL		(96,610)				
Yellow Canyon Adit		686			0	686
East from adit	1	10,204	81	6.9	560	6468
West from adit	1	10,076	81	7.4	602	6279
Fargo Canyon Adit		891			0	891
East from adit	2	11,850	81	5.7	465	5578
West from adit	2	15,200	81	5.6	457	5084
Berdoo Canyon Adit		2042			0	2042
East from adit	3	15,824	81	9.3	757	6865
West from adit	3	12,456	81	8.1	656	6552
Pushawalla Canyon Adit		2935			0	2935
East from adit	4	10,186	81	7.0	568	4082
West from adit	4	10,814	81	6.8	551	4378
WEST COACHELLA TUNNELS		(81,109)				
THOUSAND PALMS						
No. 1, West Portal	5	16,058	81	5.7	462	5806
No. 2, Tunnel	5	3838			0	3838

	Sched.					
WIDE CANYON						
No. 1, E. Portal	5	5122	81	7.1	577	2150
No. 1, W. Portal	6	9183	81	4.3	352	5455
No. 2 Tunnel	6	848			0	848
SEVEN PALMS		(16,730)				
E. Portal	6	8390	81	4.9	394	4765
W. Portal	7	8340	81	8.8	710	1694
LONG CANYON		(15,240)				
E. Portal	7	8360	81	8.1	658	1714
W. Portal	8	6880				0
BLIND CANYON		(6,788)				
E. Portal	8	—				0
W. Portal	8	6788	81	7.4	597	1449
MORONGO No. 1		(5,512)				
E. Portal	8	5512	81	6.5	526	1136
W. Portal	8	—				0
MORONGO No. 2		(1790)				
E. Portal	8	1790				0
W. Portal	8	—				0
Total excav. Force Acct. Tunnels excl. of Adits and Shafts (In Miles)		177,719 33.66	1296	6.9	8892 1.68	74,141 14.04
Total Tunnel Excavation (Miles)		91.86		6.5 ft.	4.15	34.67

Heading excavation is counted as two-thirds of full tunnel excavation.

NEWS FROM FIELD AND OFFICE

The Coachella Division played host to aqueduct forces again at a dance on the evening of Saturday, July 28, in the new divisional recreation hall. Music, furnished by an eight piece orchestra composed entirely of Coachella Division employees, was enthusiastically received by the dancers. Jack Winton, the genial chief commissary clerk, dispensed his wares from a special space reserved for him at the front of the hall. Living up to its reputation for hospitality, the Coachella Division already has extended an invitation to all aqueduct employees to attend the next dance, which is planned for the latter part of August.

* * * *

Widespread interest was created last week by the Colorado River Aqueduct exhibit at the Progress of Science Exposition held in Los Angeles. The exhibit, located in the window at the entrance of the show, on Broadway near Eighth street, included a relief map of the project and numerous large photographs of construction work.

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Senor Fredrico Malero, a distinguished Spanish engineer, and Sidney Wilmot of New York, editor of the publications of the American Society of Engineers, were visitors at the Morris Dam unit of the aqueduct project last week. They were accompanied to the dam, now being used by the city of Pasadena, by Director Franklin Thomas of the Metropolitan Water District, and Samuel B. Morris, chief engineer and general manager of the Pasadena Water Department, for whom the structure is named.

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As the NEWS went to press, it was learned that the M. W. D. Banning baseball aggregation went down to defeat, on August 1, before the Japanese All-Star team of Riverside. The score was 17 to 9. A large crowd witnessed the contest.

* * * *

June 22 was a memorable date on the Walsh Construction Company jobs near the Colorado River. Complimenting the men on the rapid progress being made on tunnel excavation, the Walsh Company took over the mess halls at both the Whipple Mountain and Copper Basin camps, inviting all employees and their families to enjoy a special chicken dinner. So that no one would miss the repast, men from all three shifts were brought out of the tunnels long enough to do their part in consuming the fowl.

AQUEDUCT TEMPERATURES
July 16 to July 28, Inclusive

	Max.	Min.
Div. 1	118	72
Div. 2 and 3	115	69
Div. 4	114	74
Div. 5 and 6	118	51

Forces of the Bureau of Reclamation, stationed at Division 1 Headquarters, are now engaged on plane table mapping in the vicinity of Parker dam site.

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H. A. Van Norman, chief engineer of the Los Angeles Water Bureau, and Engineers James E. Phillips, H. L. Jacques, and R. R. Procter were visitors on the Fan Hill and Little Morongo siphon jobs last week.

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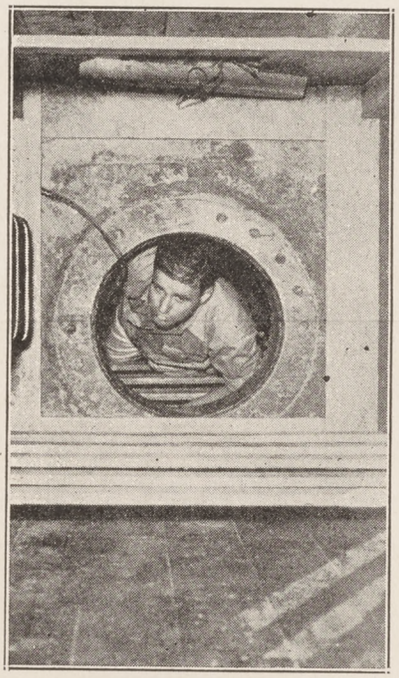
One of the newer newlyweds along the aqueduct is Edward Mason, of the Winston force at East Iron, who was married recently to Miss Ruth Todd of Blythe. The wedding was solemnized at Yuma, Arizona.



The subject of this charming desert cameo is none other than Lee M. Greenleaf, of the engineering staff of Division No. 4. The picture was taken down a manhole in the Little Morongo siphon. Dame Rumor has it (perhaps unkindly) that vanity induced Mr. Greenleaf to pose, since he is extremely proud of his sylph-like figure.

Plans were going forward last week for the proposed international exposition in 1937 to celebrate the building of the Colorado River Aqueduct, Boulder Dam, the All-American Canal, and the Alaska-to-Cape Horn Highway. Civic leaders throughout Southern California are taking an active part in preliminary arrangements.

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Maintaining a rapid pace, Walsh Construction Company crews on Colorado River tunnel excavated 961 feet of bore through rock during the month of July, making an average of 11.4 feet per shift. This mark betters all previous monthly aqueduct tunnel driving records with the exception of 1,203 feet driven last year by Utah Construction Company at West Iron, through sand.

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R. M. Merriman, construction superintendent of the Coachella Division, is the author of a highly interesting article in the current issue of Engineering News-Record on the Colorado River Aqueduct.

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That the Colorado River Aqueduct is rapidly gaining world wide recognition as an outstanding engineering project is evidenced by an extensive illustrated article appearing in the June issue of the Proceedings of the Austrian Association of Gas and Water Engineers. The author is F. X. Schonbrunner, Vienese engineer. The article also devotes considerable space to the Owens Valley aqueduct, and numerous illustrations compare the two projects in size.

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Reports from the west portal of San Jacinto tunnel indicate that 2100 feet of bench will be excavated by the middle of August, at which time full face excavation will be launched.

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The Colonel says it was because of the San Francisco dock strike, but those who know him maintain it was the lure of the leaping trout. At any rate, Col. Natt F. Jamieson, District labor employment officer, made some sort of a record in getting back to his desk last week, all the way from Qualicum Beach, Vancouver, in less than one day. He had originally planned to return by boat, but because of the strike (or the good fishing and golfing) such arrangement proved impossible, and the journey was made by plane. He lunched at Vancouver on Thursday and was back at his desk at 8 o'clock Friday morning.

New Highway Signs Installed Along Aqueduct Road

Of the 400 new type direction and cautionary signs being erected on various roads by the Automobile Club of Southern California, many are being posted on the newer sections of the Metropolitan Water District highway, paralleling the line of the aqueduct.

Erection of the new signs will complete the posting of the 150-mile aqueduct highway system. It is pointed out that the primary use of these highways is for the transportation of men, materials, and supplies to the project, but that private parties are being permitted (and will be permitted in the future) to use them, unless such use interferes with construction operations.

The work is being done as the result of cooperation between the District and the Auto Club. The District defrays the cost of the signs, and the club's sign posting force erects and maintains them.

For the benefit of employees and the general public, the District has issued a pocket map of the aqueduct system, showing these highways. Also included on the map is a table of distances from Los Angeles to points along the route.

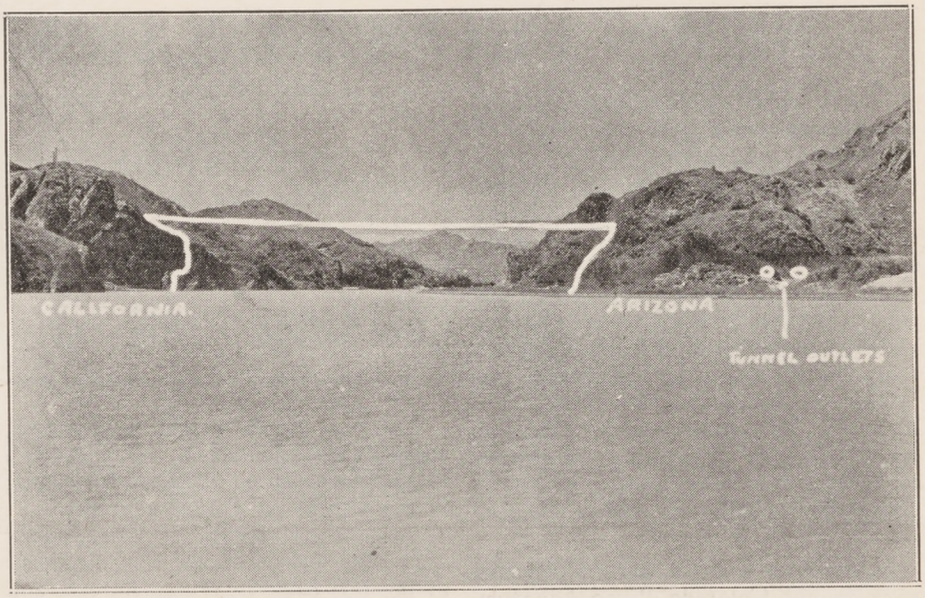
Penstock Sections Being Placed At Boulder

Of interets to persons connected with the Colorado River Aqueduct is news received of another major step taken in the construction of the aqueduct's sister project, Boulder Dam.

Installation was started last week of the heavy steel pipe sections which will form the penstocks at the dam. The sections, of several dimensions, will have a total weight of 44,300 tons. The 30-foot and 25-foot sections will be transported from the plant near Boulder City to the head tower area of the government cableway by means of a 218-ton load capacity steel trailer especially constructed for the purpose.

Sixty-seven of these sections will be placed in the upper Arizona penstock header, 75 will be placed in the upper Nevada penstock header, 87 in the lower Arizona penstock, and 87 in the lower Nevada penstock.

The fabrication and installation of the big steel pipe is considered one of the most notable pieces of work appurtenant to the Boulder Canyon project.



Parker Dam Site

RECLAMATION BUREAU OPENS BIDS ON PARKER DAM WORK

That actual construction of Parker Dam, important unit of the Colorado River Aqueduct, may be under way within thirty days was indicated following the opening of bids last week on the building of this structure. Bids were opened at the Los Angeles office of the United States Reclamation Bureau, under whose direction the dam is to be erected.

Six Companies, Inc., the construction firm which is now building Boulder Dam for the Federal Government, submitted the lowest total bid for the dam and the diversion tunnels which will bypass the waters of the Colorado River while the job is under way. Six Companies' bid totaled $4,239,834, including $1,100,841 for the tunnels and $3,138,993 for the dam itself.

This bid, it was indicated unofficially, is well under the original cost estimates for the job. The bids received last week, it was pointed out, do not include the cost of materials, rights of way, power plants, and other appurtenant works. The total cost of the job was originally estimated to be in the neighborhood of $13,000,000.

Parker Dam is one of the main units of the Colorado River Aqueduct now being constructed by the Metropolitan Water District of Southern California to supply water to the thirteen cities in the District. Aqueduct water will be taken from the river behind Parker Dam, and the United States Government will be paid the construction costs by the Water District.

In addition to Six Companies, three other firms submitted bids to the Reclamation Bureau. Southwestern Contracting Group, Inc., bidding on both the dam and the tunnel, submitted a figure of $5,496,073.10, including $1,283,017.50 for the tunnels and $4,213,055.60 for the dam. The West Construction Company bid $887,910 for the tunnels alone, and S. S. Magaffin Company, Inc., submitted a figure of $948,177, also for the tunnels alone.

Both Six Companies and the Southwestern Contracting Group stipulated that they would accept award only on both schedules.

The dam will be of concrete arch design, 800 feet long across its crest, and 315 feet high from bedrock. Its maximum thickness will be 100 feet.

The structure will be located on the Colorado River, approximately 150 miles downstream from Boulder Dam. It will be used primarily for diversion and regulation rather than storage. It will raise the level of the river approximately eighty feet. The reservoir to be formed will be approximately fifty miles long, extending upstream almost as far as the city of Needles. The reservoir capacity will be 717,000 acre feet.

Construction of Parker Dam is being launched now, rather than at a later date, in order to take advantage of the low flow of the river which will result from the filling of Boulder Dam reservoir, upstream.